

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-76. (Canceled)

77. (Currently Amended) A method of acidizing a subterranean formation penetrated by a well bore comprising ~~the steps of:~~

providing a permeability-modifying aqueous treatment fluid comprising

a relative permeability modifier comprising a hydrophobically modified water-soluble polymer that comprises polar heteroatoms within the polymer backbone, wherein the hydrophobically modified water-soluble polymer ~~is capable of reducing~~ reduces the permeability of the subterranean formation to an aqueous-based fluid, ~~or a hydrophilically modified water-soluble polymer that comprises a polymer backbone comprising polar heteroatoms, wherein the hydrophilically modified water-soluble polymer is a reaction product of a hydrophilic polymer and a hydrophilic compound;~~

providing an acidizing treatment fluid;

injecting the permeability-modifying aqueous treatment fluid into the subterranean formation; and

injecting the acidizing treatment fluid into the subterranean formation.

78. (Original) The method of claim 77 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

79. (Original) The method of claim 77 wherein the relative permeability modifier reduces the permeability of the treated zone of the subterranean formation to aqueous-based fluids, thereby diverting the acidizing treatment fluid to other zones of the subterranean formation.

80. (Original) The method of claim 77 wherein the relative permeability modifier has a molecular weight in the range of from about 100,000 to about 10,000,000.

81. (Currently Amended) The method of claim 77 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer ~~comprise~~ are selected from the group consisting of oxygen, nitrogen, sulfur, ~~or~~ and phosphorous.

82. (Original) The method of claim 77 wherein the hydrophobically modified water-soluble polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.02% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

83. (Original) The method of claim 77 wherein the hydrophobically modified water-soluble polymer is a reaction product of a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms and a hydrophobic compound.

84. (Currently Amended) The method of claim 83 wherein the hydrophilic polymer ~~comprises~~ is selected from the group consisting of a cellulose, a polyamide, a polyetheramine, a polyhydroxyetheramine, a polysulfone, ~~or~~ and a starch.

85. (Original) The method of claim 84 wherein the starch comprises a cationic starch.

86. (Currently Amended) The method of claim 83 wherein the hydrophobic compound ~~comprises~~ is selected from the group consisting of an alkyl halide, a sulfonate, a sulfate, ~~or~~ and an organic acid derivative.

87. (Currently Amended) The method of claim 86 wherein the organic acid derivative ~~comprises~~ is selected from the group consisting of an octenyl succinic acid; a dodecenyl succinic acid; ~~or~~ and an anhydride, ester, or amide of octenyl succinic acid or dodecenyl succinic acid.

88. (Original) The method of claim 83 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

89. (Canceled)

90. (Canceled)

91. (Canceled)

92. (Canceled)

93. (Canceled)

94. (Canceled)

95. (Canceled)

96. (Canceled)

97. (Canceled)

98. (Canceled)

99. (Canceled)

100. (Canceled)

101. (Canceled)

102. (Canceled)

103. (Canceled)

104. (Canceled)

105. (Canceled)

106. (Canceled)

107. (Original) The method of claim 77 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

108. (Original) The method of claim 107 wherein the permeability-modifying aqueous treatment fluid further comprises proppant.

109. (Original) The method of claim 77 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

110. (Original) The method of claim 77 wherein the acidizing treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

111. (Original) The method of claim 77 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation prior to the acidizing treatment fluid.

112. (Original) The method of claim 77 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation simultaneously with the acidizing treatment fluid.

113-186. (Canceled)

187. (New) A method of acidizing a subterranean formation penetrated by a well bore comprising:

providing a permeability-modifying aqueous treatment fluid comprising

a relative permeability modifier comprising a hydrophobically modified water-soluble polymer that comprises polar heteroatoms within the polymer backbone, wherein

the hydrophobically modified water-soluble polymer reduces the permeability of the subterranean formation zone to an aqueous-based fluid;

providing an acidizing treatment fluid;

injecting the permeability-modifying aqueous treatment fluid into the subterranean formation zone; and

injecting the acidizing treatment fluid into the subterranean formation zone so that the hydrophobically modified water-soluble polymer present in the subterranean formation zone diverts the acidizing treatment fluid to another subterranean formation zone.

188. (New) The method of claim 187 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

189. (New) The method of claim 187 wherein the relative permeability modifier has a molecular weight in the range of from about 100,000 to about 10,000,000.

190. (New) The method of claim 187 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer are selected from the group consisting of oxygen, nitrogen, sulfur, and phosphorous.

191. (New) The method of claim 187 wherein the hydrophobically modified water-soluble polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.02% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

192. (New) The method of claim 187 wherein the hydrophobically modified water-soluble polymer is a reaction product of a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms and a hydrophobic compound.

193. (New) The method of claim 192 wherein the hydrophilic polymer is selected from the group consisting of a cellulose, a polyamide, a polyetheramine, a polyhydroxyetheramine, a polysulfone, and a starch.

194. (New) The method of claim 193 wherein the starch comprises a cationic starch.

195. (New) The method of claim 192 wherein the hydrophobic compound is selected from the group consisting of an alkyl halide, a sulfonate, a sulfate, and an organic acid derivative.

196. (New) The method of claim 195 wherein the organic acid derivative is selected from the group consisting of an octenyl succinic acid; a dodecenyl succinic acid; and an anhydride, ester, or amide of octenyl succinic acid or dodecenyl succinic acid.

197. (New) The method of claim 192 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

198. (New) The method of claim 187 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

199. (New) The method of claim 198 wherein the permeability-modifying aqueous treatment fluid further comprises proppant.

200. (New) The method of claim 187 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

201. (New) The method of claim 187 wherein the acidizing treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

202. (New) The method of claim 187 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation prior to the acidizing treatment fluid.

203. (New) The method of claim 187 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation simultaneously with the acidizing treatment fluid.